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Conflicting risk attitudes☆

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ABSTRACT

This paper examines whether differences in individual risk attitudes are related to interpersonal conflict. In more than thirty villages of rural Uganda, we conduct a social survey to document social links between pairs of individuals within a village, and separately elicit individual risk attitudes using an incentivized task. Our findings reveal that the difference in risk attitudes between two individuals is significantly and positively related to the presence of interpersonal conflict between them. This relationship is particularly strong among kin. By contrast, the strength of risk aversion per se is not related to conflict. Further, we conduct simulations that suggest that the relationship cannot be solely explained by diverging attitudes after the severing of social ties as a result of interpersonal conflict.

1. Introduction

Conflict is pervasive in many different kinds of groups, ranging from small and large societies to organizations and teams (Simmel, 1955; Coser, 1998). Conflict, both violent and non-violent has very harmful economic effects. Opportunities to trade or invest are forgone when two parties cannot reach an agreement. Conflict can also lead to sabotage and destruction. Understanding when conflict is most likely to arise is especially important in developing countries, where it strongly hinders the improvement of economic and social conditions (Blattman and Miguel, 2010).

To understand why, consider that in small-scale societies with imperfect credit and insurance markets and a paucity of formal savings instruments, a dense network of relationships, many of them kin-based, governs investment behavior

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(Fafchamps, 2003). Examples include the joint purchase of large, indivisible capital goods (a plough, an irrigation pump); informal risk-sharing arrangements (IRSAs) in case the investment goes wrong; and gifts or informal loans to help finance an investment, often with an expectation of reciprocity. The myriad ways in which people in small-scale societies in developing countries, when it comes to their investment behavior, are tied through informal arrangements would suggest a tremendous scope for disagreement, and if not settled, for conflict. One plausible motive would be when one party is more cautious, i.e. more risk averse, than the other, so that conflict may result from disagreement about the amount of exposure to risk of the investment that parties are jointly engaged in. In this paper we examine conflict from a microeconomic perspective, focusing on the role of heterogeneous risk preferences in determining interpersonal conflicts in rural villages in Uganda.

From a theoretical perspective, conflict may be modeled as the outcome of a failed bargaining process (e.g., Fearon, 1995). In the context of farming, where investments are often made jointly by groups of farmers, bargaining situations may be at the heart of social tensions. Consider two farmers who face the decision of how much to invest for their farming activities, e.g., in buying a plough. Assume they will equally share the payoffs from harvesting and the investment is indivisible. A central aspect of this decision, given price and yield uncertainty, is how much risk to take. If risk preferences are private information, each farmer may have an incentive to misrepresent them during bargaining. This can lead to failed agreements (Kennan and Wilson, 1993) and generate conflict between the two farmers. This may be especially likely if their risk preferences differ substantially. In this paper, we investigate empirically whether such a relationship between risk attitudes and conflicts exists. We ask, are two individuals with different risk attitudes more likely to suffer from interpersonal conflict? Our study focuses on a society that has historically suffered from violence among its people, the Bagisu people in Eastern Uganda (Heald, 1998). Within this region, we collect information on interpersonal conflict among pairs of adults living in the same village. In particular, we ask whether village members get along well or not, inquiring in a sensitive manner about past conflict. Additionally, we collect information about a wide range of socio-economic variables and other characteristics of the social link between each pair of adults. Two weeks following the survey, we elicit individual risk attitudes in an incentivized experiment.

Our empirical approach is based on the examination of the relationship between conflict and risk attitudes, focusing on whether the likelihood of a conflictual relationship between two linked individuals is determined by the absolute difference in their degrees of risk aversion, controlling for other relevant individual and pair characteristics. Since the composition of rural villages cannot be exogenously changed, our results cannot be interpreted as causal evidence. However, focusing on different subgroups of the population and conducting an analysis based on random links, as detailed below, provides suggestive evidence for a particular direction of the relationship. Further, providing correlational evidence is nevertheless important for several reasons. To our knowledge, no previous study has examined the determinants of interpersonal conflict, as the focus in the literature is often on friendships or, generally, positive social ties. Second, we elicit an incentivized measure of risk attitudes, and not only relate conflict to individual socio-demographic characteristics. Third, interpersonal conflict may be at the very heart of the violent episodes that the people in African countries often suffer. Hence, understanding its potential sources may be valuable in deterring future violence.

Our results reveal that an increase in the difference in risk attitudes between two individuals significantly increases the likelihood of conflict, controlling for as many differences in other characteristics as possible, as well as for relationship characteristics. More precisely, a one standard deviation increase in the difference in risk attitudes (measured in terms of the distance between estimated CRRA parameters) multiplies the odds ratio of conflict by 1.23 (in absolute terms, the odds ratio increases by 0.21). Two other factors significantly increase the odds of conflict, difference in age and difference in gender. The effect of differences in risk attitudes is very similar in magnitude to that of differences in age, and somewhat smaller than that of differences in gender.

We find that differences in risk attitudes are more strongly related to the presence of interpersonal conflicts among kin. A one standard deviation increase in the difference in risk attitudes multiplies the odds ratio of conflict by a factor of almost 2 (1.92). This result is in line with the argument that bargaining among farmers may lead to conflict. As Heald (1998) reports, in the most recent ethnography of the Bagisu, resource allocation decisions among farmers (especially over land) are made in extended families, i.e. among kin, and frequently give rise to conflict. Such results are also in line with recent evidence from Attanasio et al. (2012), who find that relatives are less likely to form risk sharing groups if their risk preferences are different.

While differences in risk attitudes could lead to conflict for the reasons stated above, the link could also be in the opposite direction. Individuals, who experience interpersonal conflict may break off relationships, decrease their social contact and over time diverge in their risk attitudes. Our finding that the role of risk attitudes is especially important in conflicts among kin, where social relationships are relatively unlikely to break, makes such a channel appear unlikely. To nevertheless explore this possibility, we exploit the fact that individuals from different villages are not in contact, while almost everyone within a village knows each other and, hence, has either a non-conflictual or a conflictual relationship. We randomly generate links between individuals across villages and thereby simulate a distribution of differences in risk attitudes among individuals who have no social relationship. If conflict leads to the breakage of links and in turn to segregation of risk attitudes, we would expect the difference in risk attitudes among those who are randomly linked to be similar to those who have conflictual links. However, differences in risk attitudes are larger among individuals who experienced conflict. Further, an increase in the difference in risk attitudes is significantly related to an increase in the likelihood of conflict between two individuals, relative to the likelihood of not knowing each other (as measured by a random link).

We explore whether the level of risk aversion, instead of heterogeneity, is directly related to conflict. For example, individuals who are more risk seeking could also be more likely to exhibit interpersonal conflict. However, we do not find that risk attitudes differ significantly on average between individuals who experienced a conflict at least once and those who never did. Additionally, between pairs with similar risk attitude, we examine whether the degree of risk aversion relates to the likelihood of conflict. We do not find evidence for this either.

Overall, this paper provides novel evidence on a potential source of interpersonal conflict, namely differences in risk attitudes. Our evidence suggests that among relatives, who frequently make joint economic decisions, the likelihood of conflict may increase with differences in their risk attitudes.[1] This finding may help us understand future conflict between groups that make joint economic decisions, including small societies, kin or teams in organizations.

This paper proceeds as follows. Section 2 briefly reviews the most closely related literature on conflict and risk attitudes, focusing on studies on developing countries. Section 3 describes the design of both survey and experiment. In Section 4 we summarize the descriptive statistics of our data with respect to socio-economic characteristics and risk attitudes, before we lay out the empirical strategy in Section 5. Results are reported in Section 6. Section 7 provides a discussion and Section 8 concludes.

2. Related literature

At the outset, we had a number of reasons to expect a link between interpersonal conflict and differences in risk attitudes. First of all, there are several accounts by sociologists that differences between individuals are likely to be at the center of conflict. For instance, Deutsch (1969) argues that "A conflict may arise from differences in information or beliefs [. . .]. It may reflect differences in interests, desires or values." (Deutsch, 1969, p. 8). Since differences between individuals could be along various dimensions, it is unclear which attributes matter most, and under which circumstances they matter. Research in organizational science that studies conflict in teams, for example, documents that differences in demographic characteristics, such as age and ethnicity, are related differently to different kinds of conflict (e.g., Pelled et al., 1999).

If individuals make joint economic decisions, differences in individual risk attitudes generate a potential for conflict. As mentioned above, in bargaining situations, in which there is incomplete information, disagreements may occur in theory (e.g., Kennan and Wilson, 1993). In the online Appendix we outline a very stylized model of bargaining over a risky investment and show that disagreements over the amount to invest, which can be interpreted as conflict, arise when rather risk seeking individuals make proposals to very risk averse individuals and equal payoff-sharing is assumed. Experimental evidence on bargaining over lotteries has indeed shown that disagreements occur frequently between individuals with opposite risk preferences (Roth et al., 1988). In situations of risk sharing, if the risk attitude of each party is known to all members in the group, individuals can find optimal risk sharing agreements despite differences in risk attitudes (Wilson, 1968; Mazzocco and Saini, 2012). However, these agreements require differential payoffs depending on risk attitudes – more risk averse individuals are insured by less risk averse individuals. These differences in payoffs may be difficult to enforce due to lack of commitment and strong norms of equal payoff sharing in rural villages in Uganda. This may lead to disagreements in joint decision making under risk, which could translate to individuals developing a conflictual relationship.

A final reason we expected to find a link between conflict and differences in risk attitudes stems from the literature on the determinants of civil conflict. One strand of the literature finds that increases in inequality and polarization within a society make the emergence of conflict more likely (e.g., Esteban and Ray, 1994, 2011).[2] Although measures of inequality and polarization are mainly defined in terms of income, Esteban and Ray (1994) suggest that other individual attributes across which people might differ should be taken into account when examining the determinants of conflict, which could include risk preferences.

Our study is related to a number of recent studies of risk attitudes, risk sharing and social ties. A first strand in the literature examines the impact of exposure to violent conflict, war or bomb attacks, on individual risk attitudes (e.g., Callen et al., 2014; Voors et al., 2012). For example, Voors et al. (2012) find that individuals who were exposed to the consequences of civil war in Burundi are more risk-seeking. Our study differs from theirs in that we focus on interpersonal conflict between two individuals and in particular examine the relation to differences in risk attitudes of the individuals involved.[3]

A second set of studies related to our study examines risk preferences and risk sharing arrangements in poor locales, typically among small farmers. In developing countries, risk attitudes play a particularly important role due to the risky

[1] Relatedly, in the context of the intergenerational transmission of risk attitudes Dohmen et al. (2012) report that a correlation between risk attitudes of parents and their children is significantly weaker if children frequently fought with their parents. While their finding – based on a subsample of the German population and, hence, documented in a industrialized and highly developed country – is surprisingly consistent with our results, Dohmen et al. (2012) analysis is restricted to a very particular part of social networks, namely parents and their children. Instead, we focus on a broader category of kinship and also consider non-related individuals.

[2] Prominent examples of other determinants of conflict in society include macroeconomic shocks – particularly variation in growth rates (see, e.g., Miguel et al., 2004) or in commodity prices (Besley and Persson, 2008; Dube and Vargas, 2013 and Bazzi and Blattman, 2014, among others).

[3] The impact of exposure to war and violence has been studied also in other regards. Rohner et al. (2013) show that ethnic conflicts in Uganda during the early 2000s had detrimental effects on trust, but fostered ethnic identity. Bauer et al. (2014) find in the Republic of Georgia and Sierra Leone that exposure to civil war during middle childhood and early adulthood significantly strengthened prosociality concerns towards one's in-group, but not out-groups.

decisions that farmers face, among others.[4] Moreover, to examine and improve risk coping strategies in the absence of formal insurance markets, risk sharing groups received considerable attention lately. Starting with Townsend (1994), several studies examined risk sharing agreements using survey data (among others, Dercon and Krishnan, 2000; Fafchamps and Lund, 2003; De Weerdt and Dercon, 2006; Fafchamps and Gubert, 2007; Karlan et al., 2009). Other studies used lab experiments in the field, for example, to examine how different enforcement mechanisms and social relationships influence the formation of risk sharing groups (e.g., Barr and Genicot, 2008; Barr et al., 2012a,b). Most closely related to the present study is the paper by Attanasio et al. (2012) which examines the formation of risk sharing groups and shows that relatives and friends are more likely to form risk sharing groups. Our paper differs from theirs in that we examine the presence of antagonistic social relationships, and whether these are related to differences in risk attitudes.

A third strand of the literature examines the influence of social ties on behavior. Generally, recent experimental studies have focused on friendship compared to "other" ties. In particular, several studies have examined whether individuals are more generous towards their friends than towards others, where the latter might be either anonymous, unknown people or simply not their best friends (Leider et al., 2009; Goeree et al., 2010; Brañas-Garza et al., 2010). Conflicts, though common to many relationships and with potentially detrimental consequences for outcomes in society, have not been addressed in this literature.

3. Survey and experimental design

Our fieldwork was conducted in Sironko District, eastern Uganda. Sironko is a densely populated area with an estimated population of 346,400, roughly 284 inhabitants per squared kilometer, around 90% of whom live in rural areas (Ministry of Water and Environment Uganda, 2010). People's livelihoods depend primarily on farming and the majority belongs to the ethnical group of the Bagisu people. The Bagisu people have a reputation for violent conflict, especially intra-clan conflict, with kin pitted against kin. Conflicts among kin usually have their origin in access to resources, especially land, and are frequently triggered by the distribution of ancestral land upon the death of a family head. Unequal access to resources, as well as unequal success in life more generally, often gives rise to accusations of witchcraft and theft among kin, which can lead to violent punishment of the accused (Heald, 1998).

For this study, we first randomly selected five subcounties from Sironko District. Within every subcounty approximately ten villages were randomly selected. For each one we took a census of households and their household members.[5] Next, on average 20 households per village were randomly drawn to participate in the study and from these one adult per household was randomly chosen to be invited to participate in our study. Since we do not focus on intra-household conflicts we decided to invite only one adult per household. Local village leaders acted as witnesses of the random selection process, to ensure that invited individuals would be willing to participate in the study.

Our fieldwork consists of a survey of social links followed by an experiment that elicits risk attitudes. Out of 300 invited individuals in total 275 participants, i.e. 92%, from 34 villages completed both survey and experiment which were conducted towards the end of November and in the beginning of December 2012.[6]

3.1. Survey

All participants were visited at home by trained local interviewers.[7] The survey consists of two main parts. In the first part, the social tie survey, we elicited the social links between all participants who lived in the same village. In the second part we collected individual socio-economic characteristics.

The social links among participants within a village were elicited as follows. In the interview the respondent was given the name and presented with a picture of one of her village members who also participated in our study. First of all, she was asked whether she knew the other person. If not, we proceeded to the name and picture of the next village member on our list. If yes, she was asked, are you close friends? If the answer was no, she was asked do you get along well? Based on the last two questions we define a dichotomous variable as a measure for interpersonal conflict. This is equal to one if the respondent denied to be close friends with the other and additionally reported that they did not get along well in the past. Since direct questions on conflicts may have adverse effects in these small societies, we decided to inquire about possible conflicts among village members in a subtle and non-provocative manner. The alternative of asking a respondent

[4] Early studies investigated the risk attitudes of farmers (e.g., Binswanger, 1980). Also, as argued by Lipton (1968), Norman (1974), Schluter and Mount (1976), Scott (1976) and Wolgin (1975) risk preferences of farmers might play an important role for the adoption of new technologies and agricultural practices. This is confirmed by a recent study that relates farmers' experimentally measured risk attitudes to the adoption of a superior form of cotton production (Liu, 2013).

[5] By household members we mean all those who usually sleep and eat in the same house. We also include those who are absent for a while, but who plan to return, for example children in boarding school, a member of the household in hospital, or somebody who is away because he or she is earning income for the household.

[6] The pool of subjects used in this study is actually a subgroup of a larger sample which we prepared for three independent studies. The subjects in the full sample were randomly allocated to one of the three studies.

[7] At the time when the survey was conducted participants did not have any information or knowledge about what might happen in the experiment. However, they knew that they would be invited to participate in an experiment some weeks later.

Table 1
Lotteries

Lottery	High outcome $p = 0.8$	Low outcome $p = 0.2$	μ	σ	CRRA range	CRRA estimate
A	6000	6000	6000	0	8.13 to infinity	9.54
B	7000	5000	6600	800	2.69 to 8.13	5.41
C	8000	4000	7200	1600	1.55 to 2.69	2.12
D	9000	3000	7800	2400	1.03 to 1.55	1.29
E	10,000	2000	8400	3200	0.70 to 1.03	0.87
F	11,000	1000	9000	4000	0.38 to 0.70	0.54
G	12,000	0	9600	4800	−infinity to 0.38	−1.03

Note: Amounts stated in Ugandan Shillings (UGX); 1000 UGX ≈0.39 USD (as of October 14, 2013). μ is the expected value, σ indicates the standard deviation of the lottery. Based on expected utility theory and assuming constant relative risk aversion the CRRA parameter r refers to a utility function $U(x) = x^{1-r}(1-r)^{-1}$. For example, *F* is the optimal choice for an expected utility maximizer with $0.38 \leq r \leq 0.70$ and CRRA utility.
CRRA estimates are approximated as midpoints of the closed CRRA intervals (for decisions *B* to *F*). The mean range of the intervals is used to construct the CRRA estimate for decisions *A* and *G*.

directly whether or not a conflictual relationship exists was deemed as potentially disruptive by key informants who we consulted when designing the questionnaire. At the same time, they intimated that, in this local culture, respondents would answer "no" to the question "do you get along well?" to indicate that they are in conflict. Given our knowledge about the local culture and the sensitivity of conflict elicitation, we deem this therefore to be the most correct way to measure interpersonal conflicts.

Next, we elicited the kinship relation between the respondent and the village member. They were asked whether they were related and if so, what kind of kinship existed, including blood relationships (parents, siblings, uncles, cousins, etc.) and affinal kin (related by marriage, i.e. in-laws). In subsequent questions, the respondent was asked whether they belonged to same social groups (including saving group, burial society, friendship group, farmers' group, microfinance group, drinking group, religious group) and whether they were neighbors. Further, they were asked whether they had given or received a loan or gift, in cash or in kind.

In the second part of the survey we collected information on socio-economic characteristics of the respondent. These include gender, age, religion, ethnicity, and marital status. We also measured whether the respondent is the head of her household or not, her level of education and her occupation. We also asked about possible illnesses or disabilities. The survey then proceeded to measure the household's ownership of assets, including dwelling characteristics, vehicles, livestock and land. To construct a wealth index we conducted a principal component analysis, following Filmer and Pritchett (2001).[8] The complete list of questions for the survey is provided in Tables B.1 and B.2 in the online Appendix, respectively.

3.2. Experiment

We conducted the experiment two weeks after the survey. In the experiment participants' individual risk attitudes were elicited. We used the elicitation method of Gneezy and Potters (1997), in which a decision maker chooses how much to invest into a risky asset. Starting with 6000 Ugandan Shillings (about 1.5 times the local daily wage), the decision maker chooses how much to invest in an asset that yields a net return of 100% with probability 0.8 or is lost completely, with probability 0.2. We framed this task as choosing one out of seven different lotteries, which are presented in Table 1, in line with previous studies on risk taking in developing countries.[9] Each lottery was described to participants verbally and graphically. The instructions are provided in the online Appendix. Before making a choice, each subject was asked to answer four control questions.

Assuming CRRA preferences, choosing lottery *A*, for example, implies a higher degree of relative risk aversion than lottery *B* or *C*. Hence, lottery choices serve as an ordinal measure for individual risk attitudes and can be translated into unique intervals of CRRA parameters, for which choosing the respective lottery is optimal from an expected utility perspective. An individual's risk attitude is then approximated by the midpoint of her respective parameter interval. For boundary choices *A* and *G*, an individual's risk attitude is extrapolated by adding or subtracting the mean range of closed parameter intervals to the lower or upper boundary value, respectively (for a similar approach see Binswanger, 1981).[10]

[8] In particular, the wealth index is determined by the number of rooms in the household's dwelling; the material the floor is made of (e.g., earth and cow dung or cement); the main source of lighting in the dwelling (e.g., electricity or different forms of lanterns); the number of indigenous, exotic and crossed cattle; the number of goats; the total size of land owned by the household; the number of vehicles owned by the household, thereof bicycles and motor vehicles; the number of durable goods such as generators, stoves, sofas, beds, radios, televisions, jewelry, watches, phones, and household appliances; and the number of equipment owned by the household, i.e. storage facilities, livestock stalls, watering cans, insecticide pumps, coffee pulping machines, wheel barrows, and animal pulled ploughs.

[9] Examples of studies on risk taking in developing countries, that use a similar method include Binswanger (1980), Henrich and McElreath (2002), Attanasio et al. (2012).

[10] As a robustness check we also dropped such observations, which, however, reduces our sample size considerably. We also used the geometric mean instead. In both cases, results remain qualitatively similar.

Table 2
Summary statistics.

	Mean	Std. Dev.
Gender	0.46	0.50
Age	40.23	13.36
Household head	0.62	0.49
Married	0.81	0.39
Number of people in household	6.04	2.77
Farming as primary occupation	0.85	0.36
Farming activities	0.96	0.20
Years of schooling	5.21	2.87

Education level	Freq. (%)
None	9.1
Primary	70.2
Secondary	19.1
Tertiary	1.6

Religion	Freq. (%)
Catholicism	38.9
Protestantism (Anglicanism &other)	39.3
Islam	11.5
Seventh day Adventists	0.4
Born again	9.9

Note: $N = 252$ subjects participated in both the survey and the experiment.

At the beginning of each session participants were informed that they would be able to earn money and that their decisions were confidential. Then everyone was asked to take a seat in the meeting room. Chairs were arranged such that no subject could see what another subject was looking at. At the end of the experiment, draws were made, using a bag with counters, and participants received their payments in private.[11] Overall, 15 sessions were conducted with on average 18 subjects and maximally 21 subjects. In each session all participants came from the same subcounty, but could come from different villages. In total 275 subjects participated, of whom 252 correctly answered the control questions. Only these subjects are included in the analyses below.[12] Experimental sessions were conducted by two trained experimenters, who were supported by one assistant each, and took around two hours including payment.

4. Descriptive statistics

This section provides the descriptive statistics of our data with respect to individual socio-economic characteristics (Section 4.1) and behavior in the experimental task (Section 4.2).

4.1. Socio-economic characteristics

Table 2 presents the summary statistics of the participants' socio-economic characteristics. 49% of participants were female. Age varies from 18 to 70, the average participant being approximately 40 years old. 62% were heads of their household, 81% were married, and the average household consisted of about six members.[13] A vast majority earned most of their income by farming activities. In fact, 96% were involved in farming, though not necessarily as their primary occupation. Around 70% attended only primary school. Catholicism and Protestantism are the most prevalent religions, each practiced by nearly 40% of our participants.

[11] After this choice task, subjects participated in a second task, independent of this one.

[12] We excluded 23 participants. Not surprisingly, these people only had little education (primary education or less), only about two years of schooling on average. About 78% of them were female. Table C.1 in the online Appendix provides the above individual characteristics for both analyzed and initial sample. While these do not differ substantially, we control for individual characteristics in our analysis. Comparing the subsample which was dropped for the analysis to the analyzed sample we find that the proportion of female is larger (Fisher exact test p-value 0.004); the frequency of subjects who are married is smaller (Fisher exact test p-value 0.029); the number of years at school is smaller (MW-test p-value < 0.01); and the median age is higher (MW-test p-value 0.035). Household size (MW-test p-value 0.119) and differences in occupation (Fisher exact test p-value 1.000 (for primary occupation), 0.265 (for general farming activities)) are not significantly different. We do not find that the analyzed sample and the initial sample, which also includes subjects who failed in the control tasks, differ significantly with respect to risk attitudes. Subjects excluded from the analysis were on average slightly more risk averse, though not significantly (MW-test on the average choice, p-value 0.107).

[13] In these villages it is possible that more than one person in the household takes on the role of the household head.

Table 3
Distribution of risk attitudes.

	Lottery						
	A	*B*	*C*	*D*	*E*	*F*	*G*
Frequency	37	31	36	23	57	35	33
in %	14.68%	12.30%	14.29%	9.13%	22.62%	13.89%	13.10%

Note: Absolute and relative frequency of elicited risk attitudes in the experiment.

4.2. Risk attitudes

In the experiment subjects were asked to choose one out of the seven lotteries given in Table 1. Table 3 reports the distribution of choices observed. We observe that 22.6% chose lottery *E*, which paid 10,000 UGX with 80% chance and 2000 UGX with 20% chance. Only 9% chose *D*. A similar percentage, 14.7% and 13.1%, chose the extremes *A* (very risk averse) and *G* (risk loving), respectively.

Hence, we observe considerable heterogeneity in individual risk attitudes, which can be partially explained by individual characteristics. We find that gender, age and religion are significantly correlated with risk tolerance.[14] Interestingly, we find that men are significantly more risk averse than women, which although surprising, has been found before in studies of small scale societies (e.g., Henrich and McElreath, 2002; Gneezy et al., 2009). As expected, we find that age is negatively correlated with risky choices in the experiment, in line with, e.g., Binswanger (1980) and Henrich and McElreath (2002). In our sample, Protestants are significantly more risk seeking compared with other Christians or Non-Christians, consistent with findings in Dohmen et al. (2011) based on the German SOEP panel.

5. Empirical strategy

This section first describes how we construct a dataset of links (dyads) between different participants and provides summary statistics with respect to the extent of interpersonal conflict (Section 5.1). Then, we specify the regression approach (Section 5.2).

5.1. Dyadic dataset

In the social tie survey we elicited each participant's links to any other participant from the respondent's village (as described in Section 3.1). Based on all interviews we construct a dataset, in which each observation refers to a possible tie between two respondents, *i* and *j*, whose link was documented in the survey. In the following we refer to one observation as a *dyad* and to the dataset as the *dyadic dataset*.

We categorize each dyad *ij* either as a *no-conflict link* or a *conflict link* to distinguish between those village members who get along well and those who experienced conflicts.[15] We use the "or-matching", i.e. define a *conflict link* to exist if either *i* or *j* (or both) indicated a conflict in the social tie survey. Naturally, people might be reluctant to honestly state a negative relationship in the interview. Also, someone who actually upset her peer (e.g., by not paying back a loan) might be particularly likely to conceal these disputes. The "or-matching" allows us to identify such conflict links.

Next, based on *i* and *j*'s risk attitudes, in the following denoted by RA_i and RA_j, respectively, we define the difference in their risk attitudes, δ_{ij}^{RA}, as the absolute distance between RA_i and RA_j. Beyond that, for each dyad *ij*, we control for differences in individual socio-economic characteristics between *i* and *j* as well as other characteristics of the link between *i* and *j*. More specifically, based on the socio-economic survey we measure absolute distances in age (in years), wealth (wealth index) and education (ordered categories of primary, secondary, tertiary school); we also code differences in gender, marital status and occupation, whether they belong to different ethnic groups, and whether they differ in their ability to work. As cited above, existing research in organizational science (Pelled et al., 1999) suggests that differences in characteristics such as age could lead to conflict.

In addition to differences in socio-economic characteristics, we control for characteristics of the social tie. Differences in the degree of interaction may naturally affect the scope for conflict in a dyad. In particular, we control for whether *i* and *j* are neighbors, belong to the same social groups, received or offered a loan and/or gift to the other one, and whether they are kin.[16] Our definition of kin captures a broad measure for being related. Not only close relatives, i.e. parents and their children, but also relatives over two generations, such as grandparents and their grandchildren or cousins, are classified as

[14] We conducted an ordered logit regression with lottery choice as dependent variable as well as a linear regression with CRRA estimate as dependent variable. Details can be obtained from the authors.

[15] Only one pair of individuals agreed to not know each other, in which case we would say that no link exists. This observation is excluded in the analysis reported in Section 6.1.

[16] We define the category *kin* similar to the one of *conflict*, i.e. based on the "or"-matching. This means, a kin link is assumed to exist if at least one of both respondents claimed that a kin link exists. The same applies to the classification of neighbors, group members, and exchanges of gifts and loans.

kin. Kinship constitutes an important component within the social network of Ugandan people, as in other African rural societies. Among others, kin share and jointly utilize land, which is passed on from generation to generation.

Our sample consists of 917 dyads. On average, for each respondent we elicited his or her link to eight other participants. Around one fifth (21.5%) of the dyads are categorized as *conflict links*. Almost 40% of our sample are classified as kin. Conflicts within kin are less likely than across kin. Among kin, 16.5% of dyads correspond to *conflict links*, compared to 24.5% among village members who are not related. Due to random sampling nearly half of all dyads, 51.3%, are formed by one man and one woman, 21.2% by two women and 27.6% refer to two men. Interestingly, *conflict links* occur least frequently between men, only in 12.7% of all respective dyads. In comparison, 26.8% of mixed gender pairs and 20.1% of all female-female dyads experienced a conflict, respectively. A detailed partition of our sample with respect to conflict is provided in the online Appendix.

5.2. Model specification

In the data analysis we estimate logit models based on our dyadic dataset, to regress the likelihood of a *conflict link* on differences in individual characteristics as well as characteristics of links.[17] Summary statistics of the main variables in the dataset are provided in the online Appendix.

We use the following notation to specify dyad *ij*:

$c_{ij} \in \{0, 1\}$ is an indicator for a *conflict link* between *i* and *j*;
δ_{ij}^{RA} denotes the difference in *i*'s and *j*'s risk attitudes;
Δ_{ij}^{E} is a row vector of differences between *i*'s and *j*'s socio-economic characteristics;
Δ_{ij}^{S} is a row vector of characteristics of *i*'s and *j*'s link;
v_{ij} denotes the village of *i* and *j*;
S_i, S_j are row vectors that indicate in which experimental sessions *i* and *j* participated.[18]

Then, the likelihood of the presence of a conflict, i.e. $c_{ij} = 1$, is assumed to be given by

$$Pr(c_{ij} = 1 | \delta_{ij}^{RA}; \Delta_{ij}^{E}; \Delta_{ij}^{S}; v_{ij}; S_{ij}) = F(\alpha + \delta_{ij}^{RA}\beta + \Delta_{ij}^{E}\gamma + \Delta_{ij}^{S}\kappa + v_{ij}\xi + S_i\eta_1 + S_j\eta_2 + \varepsilon_{ij}) \quad (1)$$

where $F(x) = (1 - \exp(x))^{-x}$ denotes the cumulative standard logistic distribution function. We estimate the parameters in Eq. (1) based on a dyadic regression approach, in which we cluster standard errors at the village level. We include village fixed effects and session fixed effects for both participants. Since all links (and observed conflicts) concern relationships *within* villages, controlling for village specific unobservables as well as for correlations at the village level is particularly important.[19]

6. Results

This section examines whether differences in individual risk attitudes are related to the likelihood of interpersonal conflict. First, we report estimation results based on the dyadic dataset of links among village members (Section 6.1). In a second step, we apply a simulation based approach which allows us to compare existing links (*no-conflict links* or *conflict links*) to randomly generated links across villages (Section 6.2).

6.1. Conflict links and differences in risk attitudes

Fig. 1 displays the relationship between differences in risk attitudes, in terms of percentiles of the distribution, and the frequency of conflict. This relationship is displayed for the whole sample, kin and nonkin dyads. It reveals a non-monotone, inverse U-shaped relationship for the whole sample. As the difference in risk attitudes increases, the likelihood of conflict increases until a certain threshold (the 50th percentile) and decreases afterwards.

[17] These covariates control for characteristics that might be correlated with both differences in risk attitudes and the likelihood of conflict. The characteristics of social links might induce an endogeneity bias. For example, individuals who experienced a conflict might be less likely to exchange loans or gifts, or participate in the same social group. As a robustness check we tested whether results change if social link characteristics are excluded as independent variables, which is not the case. We will refer to additional results in the online Appendix where relevant in Section 6.

[18] Note that for all dyads it holds that *i* and *j* come from the same village. In contrast, *i* and *j* do not necessarily participate in the same experimental session since invitations to particular sessions were randomized at the subcounty level.

[19] Alternatively to clustering at the village level, we could also cluster in two dimensions with respect to both sessions of *i* and *j*. This approach, actually developed for panel data analysis in finance (see e.g., Gelbach and Miller, 2009; Thompson, 2011), is not optimally suited for our dataset because the number of sessions is substantially smaller than the number of villages. But as discussed in Petersen (2009) clustered standard errors "are consistent as the number of clusters grows" (p. 440); and, hence, clustering at the village level provides the more conservative approach which also cleanly controls for within-village correlations. When conducting a two-dimensional clustering dyadic regression, the results remain qualitatively the same. Another approach would be to cluster on the subcounty level since all participants of each experimental session belong to the same subcounty. However, since our dataset only covers five different subcounties, following the argument above, the number of clusters is not sufficiently large.

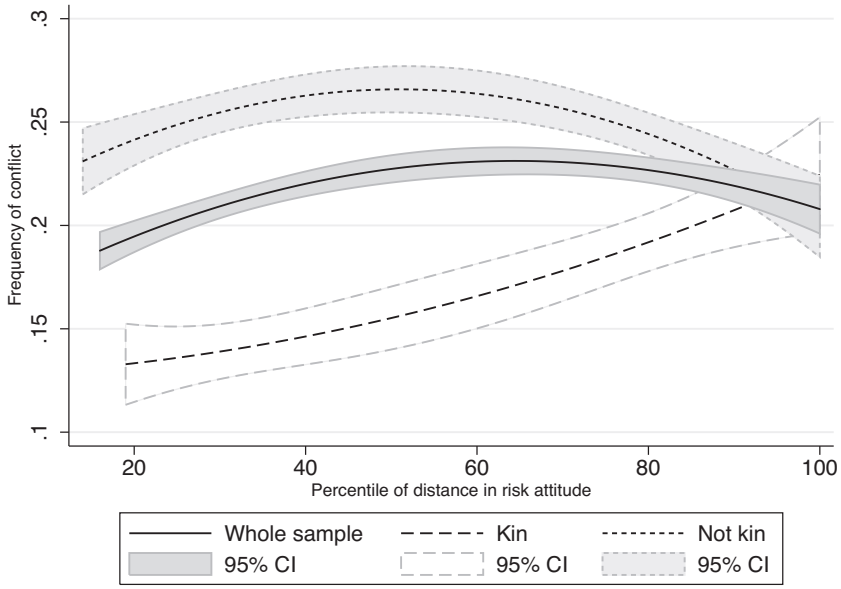

Fig. 1. Frequency of conflict by percentiles of differences in risk attitudes. *Note*: Polynomial fitted regressions predicting the frequency of conflict from a 2nd degree polynomial in the percentile of δ^{RA}. Confidence intervals refer to the 95% level.

We find a strong and significant difference in the relationship between differences in risk attitudes and likelihood of conflict depending on whether the two members of the dyad are related or not. For kin dyads, the likelihood of conflict increases monotonically with differences in risk attitudes. The predicted likelihood of conflict is 0.13 at the lowest percentile of the distribution of differences in risk attitudes. It increases to 0.22 at the 100th percentile of the distribution of differences in risk attitudes. In contrast, for nonkin dyads, the likelihood of conflict exhibits a strong inverse U-shaped relationship. An explanation for this difference may be the easier avoidance of interaction between nonkin dyads, relative to kin dyads. Potentially, those individuals who are not related and exhibit large differences in risk attitudes avoid joint decisions or social contact and thereby conflict more easily. At the same time, avoiding contact and joint decision-making between kin is more difficult, as farming as well as other activities are often discussed and shared within kin.

Our regression analysis reveals a significant influence of differences in individual risk attitudes on the likelihood of conflict. Table 4 reports the estimated marginal effects based on two model specifications and different subsamples. Considering all dyads, in columns (1) and (2), the probability of conflict increases by 1 percentage point when the difference in risk attitudes increases by one unit. Relative to the average frequency of conflict, namely 21.5%, this corresponds to an increase by roughly 5%.

Two other individual characteristics increase the likelihood of conflict significantly, differences in age and gender. If we compare the magnitude of their effect in terms of standard deviations to that of differences in risk attitudes, we find that an increase in one standard deviation in difference in risk attitudes multiplies the odds ratio of conflict by 1.23 (in absolute terms, it increases the odds ratio of conflict by 0.210). This effect is similar to the effect of increasing age by one standard deviation, 1.31, and somewhat smaller than that of changing gender from a same-gender link to a different-gender link, 1.63. Hence, in terms of magnitude, differences in risk attitudes are important as well.

By contrast, two factors significantly lower the likelihood of conflict: belonging to a different religion and belonging to a different social group. Both findings suggest that conflicts are likely to occur among those village members who frequently meet, for example, in religious gatherings, drinking groups or microfinance meetings. This finding is also in line with our conjecture from Fig. 1, namely that conflict may arise less often among individuals who do not interact with each other socially. Further, interpersonal conflicts are significantly less likely within kin relative to unrelated village members.

Next, we examine whether the relationship between differences in risk attitudes and conflict differs between two subsamples, kin and nonkin, columns (3) and (4) of Table 5. An important feature of this split is that kin dyads are exogenously determined. Remarkably, the relationship between differences in risk attitudes and the presence of conflicts is more pronounced within extended families, in terms of magnitude and significance. We find that one unit increase in the difference in risk attitudes increases the probability that kin experience conflicts by 2 percentage points. In terms of standard deviations, an increase in one standard deviation in difference in risk attitudes multiplies the odds ratio of conflict by almost 2 (1.92). Further, differences in age do not significantly affect the likelihood of conflict within kin, although they still do in

Table 4
Dyadic logit regression.

Likelihood of conflict	All (1)	All (2)	Nonkin(3)	Kin (4)
δ^{RA}	0.008*	0.008*	0.003	0.019**
	[0.004]	[0.005]	[0.005]	[0.009]
Age distance	0.003**	0.003***	0.003**	0.003
	[0.001]	[0.001]	[0.001]	[0.002]
Diff. gender	0.121***	0.121***	0.098**	0.240***
	[0.037]	[0.030]	[0.040]	[0.039]
Diff. tribe	0.109	0.054	0.113	0.284
	[0.139]	[0.123]	[0.132]	[0.184]
Diff. marital status	0.046	0.036	0.02	−0.016
	[0.036]	[0.038]	[0.048]	[0.050]
Diff. religion	−0.068***	−0.087***	−0.104***	0.002
	[0.024]	[0.021]	[0.032]	[0.053]
Education distance	0.019	0.006	−0.018	0.001
	[0.022]	[0.024]	[0.028]	[0.053]
Wealth distance	−0.004	−0.003	0.002	−0.007
	[0.010]	[0.008]	[0.009]	[0.026]
Diff. occupation	0.033	0.034	0.037	0.054
	[0.044]	[0.039]	[0.056]	[0.066]
Diff. in disabilities	0.053	0.066**	0.060*	0.089
	[0.033]	[0.030]	[0.030]	[0.054]
Neighbors		−0.145***	−0.190***	−0.059
		[0.030]	[0.042]	[0.048]
Diff. groups		−0.168***	−0.186***	−0.145***
		[0.036]	[0.043]	[0.033]
Loan		−0.0320	−0.0780	0.0040
		[0.038]	[0.057]	[0.038]
Gift		−0.0510	−0.0590	0.085*
		[0.036]	[0.048]	[0.046]
Kin		−0.082**		
		[0.036]		
% conflict	21.46%	21.46%	24.56%	16.52%
Observations	839	839	521	251
Pseudo log-likelihood	−373.7	−328.1	−205.6	−77.0

Note: This table reports marginal effects from a dyadic logit regression on conflict. δ^{RA} denotes the absolute difference between individual risk attitudes; *Age*, *Wealth* and *Education distance* refer to absolute differences in age (years), wealth index, education (primary, secondary, tertiary), respectively. Variables *Diff.* $(\cdot)$ denote dummy variables that take value 1 if individuals differ w.r.t. $(\cdot)$, and 0 otherwise. *Neighbors*, *Loan*, *Gift*, *Kin* are dummy variables that take value 1 if individuals are neighbors, exchanged a loan and gift with each other, and are kin, respectively. Both regressions includes village fixed effects and session fixed effects for both individuals per dyad. Standard errors are clustered at the village level and reported in brackets; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5
Mean differences in risk attitudes, by category of link.

	No conflict	Conflict	No tie
Mean δ^{RA}	3.37	3.48	3.45
Std. error	0.119	0.230	0.021

Note: This table reports the average of absolute values in risk attitudes (δ^{RA}) and their standard errors by three categories of links: *no-conflict link*, *conflict link*, based on existing ties in the dataset, and *random link*, based on simulated ties.

non-related dyads.[20] The difference between kin and nonkin dyads is important as it provides suggestive evidence in terms of the direction of causality. If conflict would lead to differences in risk attitudes, by breaking social ties, we would not expect the link to be stronger among kin, but rather among nonkin, since ties are easier and perhaps less costly to break. Instead, we find that the relationship is particularly strong among kin, which is line with the fact that joint decision making, especially with respect to investment activities in farming, occurs within the family.

Differences in risk attitudes might also play a different role across different gender combinations in a dyad. We find suggestive evidence that different risk attitudes and conflict might be particularly related among male-male dyads. However, we do not identify statistically significant relationships, potentially due to the limited sample sizes.

Our results so far can be summarized as follows.

[20] Given the significant correlation between age and individual risk attitudes (Section 4.2), we ran additional estimations in which we control for whether relatives belong to the same generation, such as siblings or cousins, or to different generations, such as parents and their children or aunts/uncles and their nieces/nephews. Again, differences in risk attitudes are significantly related to the presence of conflicts, magnitudes and significance remain unchanged, but generation does not matter significantly for the likelihood of conflict.

Result 1. Differences in risk attitudes are significantly and positively related to conflict. This relationship is particularly strong for kin.

6.2. Conflict versus random links: a simulation approach

The analysis so far has relied on the dataset of existing dyads at the village level. In this dataset, every dyad is either in conflict or no conflict. There are no dyads (except for one) in which two individuals within a village report not to know each other. In this section we exploit the fact that individuals from *different* villages only rarely have social interaction and thereby generate *random links*, between pairs of people who in a majority of the cases do not know each other. The question we ask is, are differences in risk attitudes in links with conflict similar to links between individuals who do not know each other?

In the relationship between conflict and differences in risk attitudes, there are two directions of causality. First, differences in risk attitudes could lead to conflict. Second, conflict may lead to differences in risk attitudes. One central way in which the latter could occur is through conflict breaking the relationship between two individuals. Existing research shows that individuals tend to assimilate to their peer group with respect to individual attitudes (Ahern et al., 2013). Thus, by assimilating to different peer groups, two individuals who had a conflict and broke their social interaction might evolve towards different risk attitudes. If so, we would expect the difference in risk attitudes of a pair of individuals who experienced a conflict and in turn broke their social interaction to be on average similar to that of a pair of individuals who do not know each other. If the data confirms such a pattern, it would provide evidence in line with conflict leading to different risk attitudes, through the mechanism outlined above. If it does not, it would suggest that at least one central mechanism explaining why conflict may lead to differences in risk attitudes is not at play in our data.

Specifically, we linked each individual with 100 randomly selected individuals from different villages, without replacement. We chose to generate links across different villages since social interaction is rare across villages. Hence, by generating random links across villages we are generating ties among individuals who in the vast majority of the cases do not know each other. Appending these *random links* to our initial dyadic dataset generates a new dyadic dataset which allows for three categories of dyads.

Table 5 summarizes the differences in risk attitudes for dyads of all three categories. We find that differences in risk attitudes differ across the three categories. The average is largest for those who experienced a conflict, and smallest for those who know each other and get along well. For *random links*, the mean difference in risk attitudes is in between *no-conflict* and *conflict links*.

As a next step, we ask whether an increase in the difference in risk attitude is equally likely to predict a conflict link and a random link. To do so, we estimate an multinomial logit model, in which we regress the likelihood of observing a particular category of dyad, i.e. *no-conflict link*, *conflict link* or *random link*, on differences in risk attitudes and other socio-economic characteristics.[21] Analogously to models estimated in Section 6.1, we include village and session fixed effects of both individuals, and standard errors are clustered at the village level.[22] We find that differences in risk attitudes significantly increase the probability that individuals experience conflicts compared to the probability that individuals are randomly linked, as shown in Table 6. By contrast, an increase in the difference in risk attitudes does not imply a significant change in the likelihood of getting along well, i.e. *no-conflict*, relative to the likelihood of not knowing each other.[23] The findings that conflicts are significantly correlated to differences in age, gender, and religion, are once more confirmed.

Result 2. In a sample of existing links between village members and randomly generated links across different villages, differences in individual risk attitudes are largest for conflict links. An increase in the difference in risk attitudes is significantly related to the likelihood of conflict relative to the likelihood of a random link.

7. Discussion

We find that individuals are significantly more likely to report a conflictual relationship when the difference between their individual risk attitudes is larger. This tendency is particularly pronounced among kin. Further, differences in risk attitudes are significantly larger in dyads with reported conflictual links than in random dyads.

To the best of our knowledge this is the first paper to identify close interdependencies between interpersonal conflicts and risk attitudes. The finding that individuals who differ in their attitudes towards risk are more likely to experience conflicts with each other is novel to the literature on risk attitudes as well as to the literature on social ties.

[21] Note that information about the social relationship is not available for simulated ties, and hence, variables from the social tie survey are not included in these regressions.

[22] For randomly generated links, individuals *i* and *j* do not come from the same village. Hence, clustering only at *i*'s village might not completely rule out biased standard errors. However, we address this concern by letting each individual appear as person *i* in at least one observation, and by including fixed effects of *i and j*'s villages and sessions.

[23] The effects might seem small in their magnitude, but given that in the extended sample only 0.75% of dyads have interpersonal conflicts, an increase in the likelihood of such a conflict by 0.03 percentage points is relatively large and close to 4%.

Table 6
Multinomial logit regression: likelihood of link categories.

	No conflict		Conflict
δ^{RA}	−0.000249		0.000276**
	[0.000241]		[0.000127]
Age distance	−0.000016		0.000102**
	[0.000078]		[0.000043]
Diff. gender	−0.001955		0.004267***
	[0.001874]		[0.001183]
Diff. tribe	−0.004798		0.00368
	[0.003598]		[0.003470]
Diff. marital status	−0.003243		0.001347
	[0.002271]		[0.001671]
Diff. Religion	−0.020480***		−0.006009***
	[0.005482]		[0.001694]
Education distance	−0.000602		0.000029
	[0.001507]		[0.000902]
Wealth distance	−0.00046		−0.000329
	[0.000578]		[0.000377]
Diff. occupation	−0.003791		−0.001294
	[0.002325]		[0.002170]
Diff. in disabilities	−0.001061		0.002782**
	[0.001533]		[0.001297]
Observations		26,117	
Category of interest as % of all observations	2.76%		0.75%
Pseudo log-likelihood		−3785	

Note: This table reports the marginal effects of a multinomial logit regression. The dependent variable refers to the category of link, i.e. *no-conflict link* (column (1)), *conflict link* (column (2)); *random link* is the base category. Independent variables are defined as in Table 4. Regression includes village and session fixed effects, for both individuals in each dyad. Standard errors are clustered at the village level and reported in brackets; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

We acknowledge that the relationship between differences in risk attitudes and conflict may critically rely on the particular source of conflict between pairs of individuals, which would have been a potential further step to investigate. However, among the Bagisu people in rural eastern Uganda sources of conflict are often expressed in terms of vague accusations of "witchcraft" and "theft" (Heald, 1998), making it difficult to cleanly differentiate between sources. Further, we inquired about possible conflicts in the least intrusive manner possible, to avoid embarrassment, anguish or other possible adverse effects on participants. We close this paper with some remarks on whether risk attitudes per se may relate to conflict and comments on identifying correlation versus causality.

7.1. Risk levels or differences?

One may conjecture that conflict may be driven by levels of risk aversion, which perhaps correlate with some personality traits, and not necessarily with differences in risk attitudes within a dyad. We address this possible confound in two ways. First, we find that the average risk attitude elicited in the experiment does not differ significantly between those people who actually report a conflict at least once compared to those who never report a conflict (MW-test, p-value 0.12). For dyads where individuals are similar in terms of their risk attitudes we test whether the level of risk attitudes has an effect on the likelihood of a conflict to be present.[24] We find that the likelihood of a *conflict link* is not significantly related to risk attitude itself, conditional on (i) having exactly the same risk attitude ($\delta^{RA} = 0$), (ii) making neighboring lottery choices (e.g., i choosing B, j choosing A or C), (iii) having a difference in risk attitudes which is less than or equal to the smallest non-zero percentile of the distribution of δ^{RA} or (iv) less than or equal to the 25%-percentile. Hence, Result 1 and Result 2, reported above, are not driven by the possibility that the level and not the difference in risk attitudes is related to conflict.

7.2. Correlation and causality

Exogenously generating dyads with varying differences in risk attitudes among individuals and observing conflict emergence is highly unfeasible in a naturally occurring setting. We are hence able to draw conclusions about correlations, but do not prove statements of causality.

Nonetheless, we ask, which mechanism seems more likely to explain the relations observed in our data? On the one hand, individuals might experience interpersonal conflict because they differ in their risk attitudes, as suggested by existing results on bargaining under risk and heterogeneous preferences. On the other hand, individuals might differ in their risk

[24] Results can be found in Table C.5 in the online Appendix.

attitudes because they experienced conflicts in the past and consequently give each other a wide berth in the future. It may also be possible that both causalities exist at the same time: differences in risk attitudes might lead to conflicts, and conflicts might even strengthen differences in risk attitudes, generating segregation with respect to attitudes and a high frequency of conflicts.

Our results are strongly driven by kinship dyads. Kinship links are exogenously determined and harder to break that nonkin links. If conflict lead to differences in risk attitudes, through the breakage of social interaction, we would not expect it to be particularly driven by kinship links. Additionally, when we investigate whether conflict links are similar to links among people who do not know each other, we find significant differences in the relationship to differences in risk attitudes. This suggests that the relationship between conflict and heterogeneity in risk attitudes is not solely explained by the breakage of social relationships.

8. Conclusion

This paper examines whether interpersonal conflict is related to differences in attitudes towards risk. We conduct a study in rural Uganda, which consists of a social tie survey to identify links between village members, followed by an experiment to elicit risk attitudes. Our sample covers nearly one thousand dyads of individuals and provides detailed information about socio-economic characteristics as well as characteristics of social relationships. With the exception of only one dyad, all village members know each other. Out of these existing links more than a fifth, 21.5%, report interpersonal conflict.

We find a persistent and significant relationship between the presence of conflict links and differences in risk attitudes: a larger difference is significantly related to a higher likelihood of interpersonal conflict. Interestingly, this relationship is particularly strong among kin, but not significant for non-related village members. More precisely, for kin, a 1 unit increase in the standard deviation of the difference in risk attitudes corresponds to almost a doubling of the odds ratio of conflict.

To extrapolate our analysis to links between individuals who are very unlikely to know each other, we use a simulation approach and randomly generate links across villages. If conflicts are likely to result in the severing of social ties, as a result of which differences in risk attitudes might increase, we would expect risk attitudes to be similar across random and conflict links. However, differences in risk attitudes are significantly larger among conflict links. Consistent with our previous results we find that an increase in the difference in risk attitudes is related to a significant increase in the likelihood of conflict links, relative to the likelihood of a link between individuals who do not know each other (as measured by random links). Moreover, we do not find any evidence that risk attitudes per se are correlated to interpersonal conflict.

An important novelty of this paper is our focus on negative interpersonal links, conflict, instead of positive relationships, such as friendship. In that sense, our paper provides the first evidence which relates differences in individual attitudes to risk to interpersonal conflict. Our evidence suggests that among individuals who frequently make joint economic decisions, kin, the likelihood of conflict increases with differences in their risk attitudes. Examining which particular types of conflict relate to differences in attitudes towards risk, and how these could potentially be prevented, will be an important step for future research. Our results explicitly show how fragile interpersonal relationships might be under heterogeneity in risk attitudes.

Appendix. Supplementary data and analyses

Supplementary data and analyses associated with this article can be found, in the online Appendix, at http://dx.doi.org/10.1016/j.jebo.2015.03.003.

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